

Work Order ID 158849

Friday, March 31, 2017 10:09:36 PM

158849

Page 1

Item ID: D2435 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Bearpaw
Start Date: 4/3/2017 Start Qty: 4.00 ***4*** Cust Item ID:
Required Date: 4/17/2017 Req'd Qty: 4.00 ***4*** Customer:
Reference: SCHEDULED

Approvals: Process Plan: DAS Date: APR 03 2017 Tooling: _____ Date: _____ Run Start ***NR1***
QC: 21 Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D2435	Rev E1								

120 0.00
120 FLOW WATER JET
Waterjet Memo 0.57
FLOW CNC Waterjet CUT BLANK AS PER FILE D2435

130 0.45
130 HAAS CNC VERTICAL MACHINING #1
HAAS 1 Memo 1.75
HAAS CNC vertical machine #1
1-Inspect material for defects or damage prior to machining
2-Machine as per Folio FA789 and Dwg D2435 Identify as D2435
3-Deburr

140 0.00
140 QC2- Inspect parts off machine FAI/FAIB
QC Memo 0.04
Quality Control

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			Completed By
					Lead hand / Supervisor Approval Verification
					QC / QA Coordinator Approval
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Work Order ID 158849

Friday, March 31, 2017 10:09:36 PM

158849

Page 2

Item ID: D2435 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Bearpaw
Start Date: 4/3/2017 Start Qty: 4.00 ***4*** Cust Item ID:
Required Date: 4/17/2017 Req'd Qty: 4.00 ***4*** Customer:
Reference: SCHEDULED

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	QC8- Inspect parts - second check	0.00				4	0		DAS 14 9-89 17/04/20
150									
QC	Memo	0.08							
Quality Control									
151	Identify as per dwg & Stock Location: <u>Sty46A</u>	0.00				4			DAS APR 25 2017 9-89
151									
Packaging	Memo	0.04							
Packaging									
190	QC21- Final Inspection - Work Order Release	0.00							17/4/26
190									
QC	Memo	0.40							
Quality Control									

DAS
21
9-89

APR 25 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. COOR. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐		No Re-verification ☐		Pressure/Forced ☐		Temperature/Cure ☐	
Design ☐		Operator ☐		Bending ☐		Set-up ☐	
Doc/Data ☐		Offset/Setup ☐		Centre Not Concentric ☐		BOM/Route ☐	
Equip/Tooling ☐		Supplier ☐		Cracks ☐		Broken/Damage/Defect ☐	
Handling/Pre ☐		Training ☐		Crimp/Kink/Ripple/Wave ☐		Inspection Incomplete/Unqualified ☐	
Material ☐		Use for Testing ☐		Cuffs ☐		Contamination ☐	
Internal Transport ☐		Poor Information ☐		Crushing ☐		Countersink ☐	
Tribal Knowledge ☐		Rushing ☐		Heat Treat ☐		Cut Too Short ☐	
LOA ☐		Product Improvement ☐		Wave/Twist in Tube ☐		Instructions Incomplete/Unclear ☐	
Substation ☐		Process Improvement ☐		Marks/Chatter ☐		Drill Holes ☐	
Past Expiry Date ☐		Manufacturing Process ☐		OTHER : _____			
Misidentified ☐		Past Due ☐					

Picklist Print

Friday, March 31, 2017 10:09:36 PM

Page 1

Work Order ID: 158849

158849

Parent Item: D2435

D2435

Parent Item Name: Bearpaw

Start Date: 4/3/2017

Required Date: 4/17/2017

Start Qty: 4.00

Required Qty: 4.00

Comments:

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MUHMWB10		Purchased	No			120	sf	431.5170	3.2	12.8			

MUHMWB10

UHMW 1" Black - 48"x120" Tivar Mfg.#52480104

04/17/04/04

Location

Loc Qty

Loc Code

MAT011

13.517

m131661

13.517

MAT018

418

m136290

18

m136453

400

6.5

6.5
3

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

DART AEROSPACE LTD		Work Order: 158849
Description: Bearpaw		Part Number: D2435
Inspection Dwg: D2435 Rev: E1		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Inspection Sheet	Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
A	0.063 x 45°	+0.030/-0.010	0.063 x 45			vern	mmC-05
B	5.500	+/-0.030	5.500			↓	
C	0.200	+/-0.030	0.184			↓	
D	R0.250	+/-0.030	0.250			2G	
E	0.250	+/-0.010	0.254			vern	mmC-05
F	0.625	+/-0.030	0.624			↓	
G	0.25 x 45°	+/-0.030	0.25 x 45			↓	
H	0.375	+/-0.010	0.378			↓	
I	19.000	+/-0.030	19.00			tape	
J	0.950	+0.030/-0.010	0.949			vern	mmC-05
K	Ø0.260	+0.005/-0.000	0.260			↓	
L	Ø0.930	+/-0.030	0.928			↓	
M	0.30	+0.030/-0.000	0.315			↓	
N	0.375	+/-0.030	0.380			↓	
O	7.375	+/-0.030	7.371			↓	
P	4.250	+/-0.010	4.247			↓	
Q	2.000	+/-0.030	2.015			↓	
R	9.000	+/-0.010	9.000			tape	
S	15.750	+/-0.030	15.750			tape	

Measured by: DAS 49 9-89	Audited by: DAS 14 9-89	Prototype Approval:	N/A
Date: 17/04/20	Date: 17/04/20	Date:	

Rev	Date	Change	Revised by	Approved
A	03.09.22	New Issue P/O K10007	KJ/RF	

DART



RELEASED
98.06.17 KE

DESIGN	DRAWN BY	DART AEROSPACE LTD HAMKESBURY, ONTARIO, CANADA	REV. E
CHECKED <i>KE</i>	APPROVED <i>KE</i>	DRAWING NO. D2435	SHEET 1 OF 2
DATE 98.05.19	TITLE BEARPAW	SCALE 1:5	

A	96.01.24	NEW ISSUE
B	96.03.26	CHANGE BORE AND C'BORE DEPTH
C	97.05.07	CHANNEL & C'BORE DEPTH CHANGED
D	97.10.17	R1.5 BORE WAS R2.637 (TSR A469)
E	98.05.19	CHANGE C'BORE, R1.58 WAS R1.50

ENGRAVE LOGO TO MAX DEPTH OF 0.012. ENGRAVE PART AND BATCH NUMBERS TO MAX DEPTH OF 0.010. (TYPICAL LOCATION AS ILLUSTRATED)

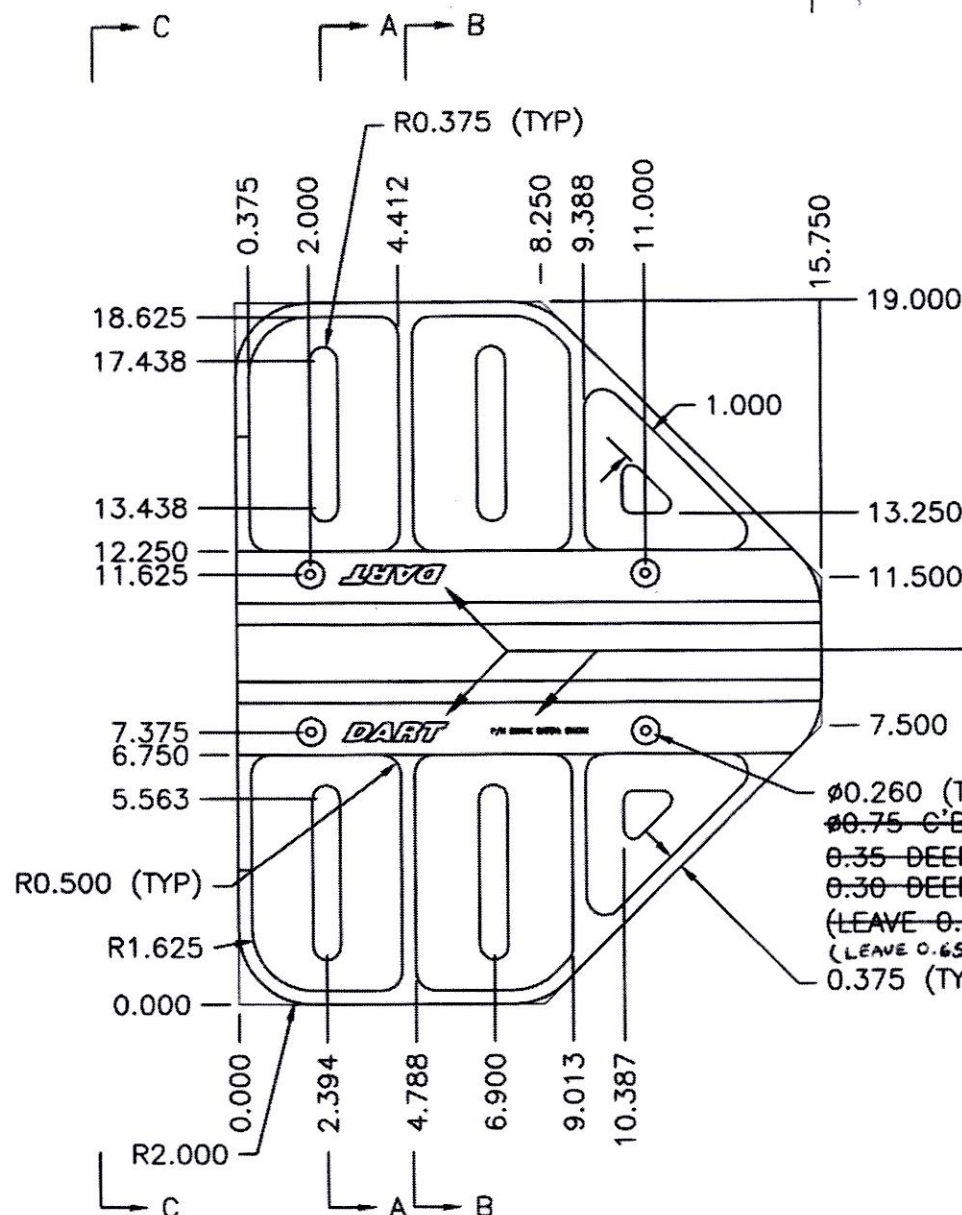
SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. *158844 MJS*
170403



$\phi 0.260$ (TYP) $\phi 0.93$ C'BORE
 ~~$\phi 0.75$ C'BORE~~ 0.30 DEEP FROM BOTTOM
0.35 DEEP FROM TOP (MIN.)
0.30 DEEP FROM BOTTOM
(LEAVE 0.300 MIN.)
(LEAVE 0.650 MIN.)
0.375 (TYP)

<i>9143</i>	
-------------	--

EFFECTIVE DEOS

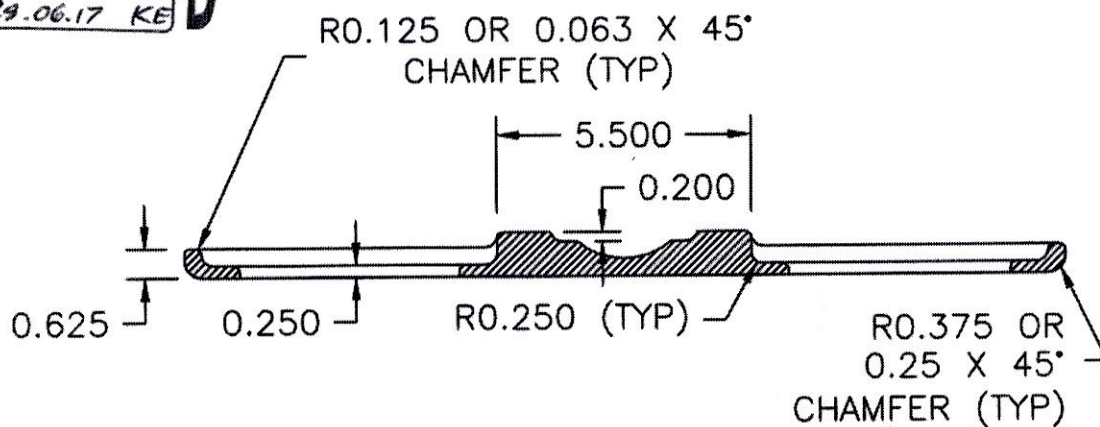


MATERIAL: UHMW BLACK PER SPEC CONTROL DRAWING D2689
1.00 THICK (MACHINE TO 0.950)

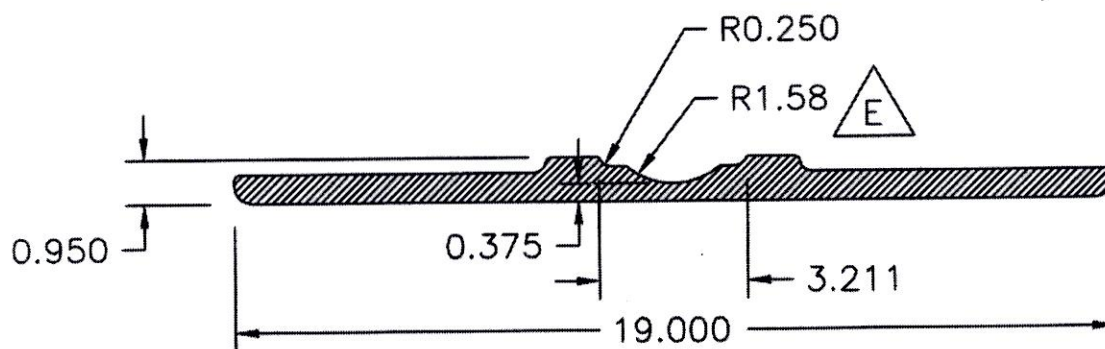


DESIGN <i>KE</i>	DRAWN BY <i>KE</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>DJB</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D2435	REV. E SHEET 2 OF 2
DATE 98.05.19	TITLE BEARPAW		SCALE 1:4

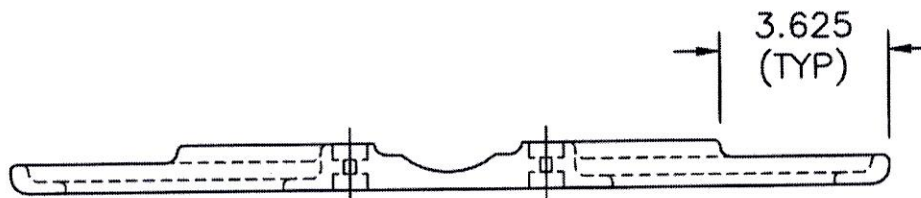
RELEASED
99.06.17 KE



SECTION A-A



SECTION B-B



SECTION C-C